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(54) **NANOPARTICLE PLASMONIC SENSOR FOR  
LOCALIZED SURFACE PLASMON  
RESONANCE**

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(57) **ABSTRACT**

The present invention provides a sensor for detecting the binding of molecules to membrane surfaces. The sensor comprises a nanoparticle coated with a continuous layer of silica, and having a ligand attached thereto, for detection of an analyte in a solution. The nanoparticle can be further coated with a continuous membrane, such as a lipid bilayer.